



Attorney Docket No.: 03652/000K015-US0

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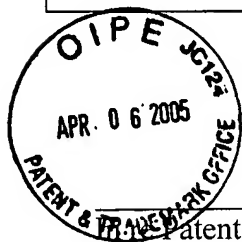
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Fee Transmittal (1 page)

Appeal Brief (Re-submission in response to Notification of Non-Compliant Appeal Brief (37 CFR 41.37) mailed March31, 2005 (15 pages) (in **TRIPLICATE**)
Appeal Brief Transmittal (1 page)
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Docket No.: 03652/000K015-US0
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application of:
William E. Pence et al.

Customer No.: 07278

Application No.: 10/017,498

Group Art Unit: 3621

Filed: December 14, 2001

Examiner: Calvin L. HEWITT

For: **METHOD AND APPARATUS FOR
DYNAMIC RENEWABILITY OF
CONTENT**

APPEAL BRIEF

MAIL STOP Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Appellants submit this Appeal Brief in triplicate as required by 37 C.F.R. § 1.192. A Notice of Appeal was filed October 13, 2004 in response to the Final Office Action mailed July 13, 2004. Appellants submit concurrently herewith the required fee for this Brief pursuant to 37 C.F.R. §§ 1.192 and 1.17(f). It is believed that no additional fees are required for this submission. However, should it be determined that additional fees are required or that any refund is due in connection with this application, the Commissioner is hereby authorized to charge the required fee(s) and/or credit the refund(s) due to Deposit Account No. 04-0100.

REAL PARTY IN INTEREST

The real party in interest is the assignee of the Appellants. The assignee of record is Duet General Partnership, which changed its name to Napster LLC. Appellants are inventors William E. Pence, Dik Langan, Cynthia Healy, Geoff Schreiber, and Donna Penick.

RELATED APPEALS AND INTERFERENCES

Appellants' attorney is not aware of any other related appeals and/or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

STATUS OF THE CLAIMS

This is an appeal from the Examiner's rejection of claims 1-22 [sic], in a Final Office Action dated July 13, 2004. Appellants note that the Final Office Action dated July 13, 2004 states that claim 10 is included in the rejection. However, claim 10 was cancelled in the Amendment dated October 1, 2003. Claims 1-9 and 11-22 are pending and are the subject of this Brief. Appellants, from this point forward, will address their comments to the actual claims pending. The claims are set forth in Exhibit A immediately following this Brief.

STATUS OF AMENDMENTS

The Amendment submitted by Appellants on March 31, 2004 and Supplemental Arguments filed April 5, 2004 have been entered. Appellants have not submitted an amendment subsequent to the Final Office Action of July 13, 2004.

SUMMARY OF THE INVENTION

The present invention relates to a method and apparatus for dynamically and transparently loading and renewing the licenses associated with downloaded content. Any type of content can be regulated, but examples of some types of content are audio music files or video movie files. Licensing associated with content can allow the provider to retain control over the content after it has been downloaded onto the user's computer. This protects the content from being copied, and enables a 'subscription model' for the continued use of the content wherein access to the content on the user's computer can be restricted if the user's account is not in good standing. This is in contrast to no protection or permanent protection. Permanent protection limits the number of times a user can use the content and/or the devices the content can be played back on. The protection is considered permanent because the protection cannot be changed after the content is purchased.

A License File or similar licensing parameter is the key to retaining control of the access to content after it has been downloaded. The License File contains numerous pieces of information regarding how the content can be consumed. Access restrictions can be based on the number of times the content can be accessed or a particular date after which the content is no longer accessible, or the type of device to which the content may be transferred. The License File may also include information about the specific computer the content was downloaded onto. A License File is sent to the user's computer without notifying the user, and then the content is downloaded or streamed to the user. Once the License File is transparently copied to the user's computer, a dynamic and transparent renewal method renews the License File on the user's computer, allowing the associated content to be used without disruption as long as the user's account is in good standing.

When a user requests access to content, the subscription service verifies the user's request and creates a License File to control access to the content. The License File is then downloaded to the user's computer without notifying the user and, in one embodiment, the content is then downloaded or streamed to the user. This allows constant control of access to the content without the user being aware of the controlling License File. One reason is that if a user attempts to copy the content, the License File is not copied with it and the user is denied access to the copy of the content. Denying access to improperly copied content prevents unauthorized copying.

Further, access to the content is granted continuously for as long as the user's account is in good standing. The License File must be updated to reflect the status of the user's subscription. In one embodiment, the License File is updated each time the user logs into the service. The updated License File is transparently renewed and the user is provided with uninterrupted access to his content. The transparent transmission of the License File allows the subscription service to retain control of the content without disrupting the user's continuous access to the content.

ISSUES

The first issue is whether claims 1-9 and 11-20 should be rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement and claims 1-9, 11-20 and 22 should be rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

The second issue is whether claims 1-9, 11-20 and 22 should be rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention.

The third issue is whether claims 1-7 and 11-22 should be rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,056,786 to Rivera et al. (“Rivera”) in view of U.S. Patent No. 6,009,401 to Horstmann.

The fourth issue is whether claims 8 and 9 should be rejected under 35 U.S.C. § 103(a) as being unpatentable over Rivera in view of Horstmann and further in view of U.S. Patent No. 5,023,907 to Johnson et al.

GROUPING OF CLAIMS

Independent claims 1 and 22 and dependent claims 2-9 are believed to be patentable over the cited art for the reasons set forth below. Claims 1-9 and 22 stand and fall together. Independent claims 19-21 and dependent claims 11-18 are believed to be patentable over the cited art for the reasons set forth below. Claims 11-21 stand or fall together and independently from the remaining claims.

ARGUMENTS

(i) Rejection of claims 1-9, 11-20 and 22 under 35 U.S.C. § 112, first paragraph

(Issue No. 1) Claims 1-9 and 11-20 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement and claims 1-9, 11-20, and 22 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement.

The Examiner contends, for both the written description and enablement requirements, that the Specification is silent regarding the claim terms “renewing the parameters transparently” and “update said license file parameter transparently” and further that there is no enabling disclosure

because the Specification does not teach or suggest to one of ordinary skill in the art how to update or renew files transparently.

Claims 1 and 17-22 recite the elements of “transparently transmitting”; “transparently updating” or “transparently renewing” and Appellants respectfully submit that the claims comply with the written description requirement and that the invention is fully enabled to one of ordinary skill in the art.

Appellants disagree with the Examiner’s statement that the written description does not support the “transparent” elements. The Specification and claim as originally filed clearly support the term “transparently”. Claim 1, as filed, recited that the License Files are “transparently transmit[ed]” and “transparently renew[ed]”.

Support for transparently transmitting files is in the Detailed Description. The Specification sets forth that when a user requests to download content that the “License Files are then sent to the user’s computer without notifying the user, and then the content is downloaded or streamed to the user.” Specification, page 8, lines 7-8. The Specification goes on to describe that the License Files are transparently transmitted to the user’s computer either as part of the initial request for the content or as part of the process of renewing existing License Files. The License Files are transparently transmitted to prevent unauthorized use or copying of the content and the transmission does not interrupt a user’s session.

Support for transparently renewing (or updating) files is also found in the Summary of the Invention. The Specification recites that the “present invention relates to a method and apparatus for dynamically and transparently renewing the licenses associated with downloaded content.” Specification, page 4, lines 13-14. Further, License Files are transparently renewed to allow the user continuous access to content for as long as the user’s subscription is in good standing.

Further, the Examiner contends that the Specification does not enable the invention by providing one of ordinary skill in the art the necessary information to make and use the present invention. Appellants respectfully traverse the Examiner's contention.

A review of the prior art illustrates that the "transparent" handling of files is known and within the knowledge of one of ordinary skill in the art. Thus, the Specification, along with the knowledge of one of ordinary skill in the art enables one to make and practice the invention.

For example, U.S. Patent No. 6,519,624 ("the '624 patent" - attached hereto as Exhibit C), filed in the U.S. on April 28, 1999 (over 1 ½ years before the present application) discloses a data transmission/receiving system for exchanging data records between two computer nodes. The invention of the '624 patent determines the most efficient communications network between the two nodes to transmit data. The analysis is based on the size of the data and the speed of the network and the data is transmitted over the most efficient network. The "transmission takes place transparently for the user of the client application and other applications ... [Thus,] the solution taught by the invention is particularly user-friendly, and does not require any modifications to existing applications." The '624 patent, column 2, lines 6-11.

The data records disclosed by the '624 patent "can contain, for example, images, finished pages, video sequences or a multimedia document ... [and] can consist, for example, of control data that are exchanged between applications, correction data or status data concerning documents." The '624 patent, column 5, lines 32-37. The data is transmitted to and from the nodes and the users initiate the transfers. The disclosure of the '624 patent describes the method and system to switch between communications networks but provides no further information on how the switching and transmission is performed "transparently." The transparent nature of the invention is not described in detail but independent claims 12 and 14 of the '624 patent recite elements of "switch[ing]

(ii) Rejection of claims 1-9, 11-20 and 22 under 35 U.S.C. § 112, second paragraph

(Issue No. 2) Claims 1-9, 11-20 and 22 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. The Examiner contends that the Specification is silent regarding “renewing the parameters transparently” and “update said license file parameter transparently” and further does not provide enough information to teach or suggest to one of ordinary skill in the art how to update or renew transparently. Appellants respectfully submit that the claims particularly point out and claim the subject matter of the invention.

Similar to Issue No. 1 above, the Specification is not silent as to the terms “transparently renewing” and “transparently updating”. All of the arguments presented to refute the Examiner’s rejection under 35 U.S.C. § 112, first paragraph, also apply to this issue. The Specification clearly states that the “present invention relates to a method and apparatus for dynamically and transparently renewing the licenses associated with downloaded content.” Specification, page 4, lines 13-14. Additionally, when a user requests to download content, “License Files are then sent to the user’s computer without notifying the user, and then the content is downloaded or streamed to the user.” Specification, page 8, lines 7-8. Appellants again submit that the Specification is not silent on the element of renewing or updating the parameters without notifying the user.

Further to the § 112, first paragraph, arguments above, one of ordinary skill in the art has the ability to transparently transmit a file to a user. Appellants are claiming a new and novel way of protecting electronic content by transmitting and renewing License Files without notifying a user (i.e. transparently).

Appellants submit that the combination of the description in the Specification and the knowledge of a person of ordinary skill in the art provide the necessary teaching to render the claims definite. The Specification recites what the License Files do (control access to electronic content) when the license files should be sent to the user's computer (before or during download or stream and to refresh the license files with updated subscription information) and that the License Files are transmitted "transparently" and "without notifying the user". The definition of "transparent" is known to one of ordinary skill in the art and, one of ordinary skill in the art has the knowledge to transparently transmit a file. The combination of disclosed and known teachings renders definite the claimed steps, from claims 1-9, 11-20 and 22, as below:

"transparently transmitting the license file to the user without notifying the user;"

"transparently renewing the parameters without notifying the user in the license file ... ;"

"transparently update said license file without notifying the user ... "; and

"transparently receiving, by the user, the license file."

The Specification provides sufficient information to render the claims definite and sufficiently point out the claimed subject matter. Thus, Appellants respectfully request that the above rejection be withdrawn or reversed.

(iii) Rejection under 35 U.S.C. § 103(a)

(Issue No. 3) Claims 1-7 and 11-22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,056,786 to Rivera et al. ("Rivera") in view of U.S. Patent No. 6,009,401 to Horstmann. The Examiner contends that Rivera discloses the entire invention, including creating a license file, storing license files, and a subscription management system. The

transmission of the license file the license file is never “transparently” transmitted, updated or renewed.

Further, Horstmann, if not teaching away as Appellants assert, is silent on how his license files are transmitted. Horstmann does not disclose that the license files are “transparently” transmitted. Additionally, there is no teaching or suggestion that one of ordinary skill in the art should transmit the license file “transparently”. On the contrary, a user must be aware of the license file to know to back-up the file and to request a new license file if the old one is lost or destroyed.

Thus, Horstmann does not teach or disclose the transparent transmission, updating and/or renewing of the license file as required by the present claims. Additionally, the combination of Rivera and Horstmann do not disclose all the elements of the pending claims. Appellants respectfully submit that the present invention is nonobvious and the above rejection be withdrawn or reversed.

(iv) Rejection under 35 U.S.C. § 103(a)

(Issue No. 4) Claims 8 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Rivera in view of Horstmann and further in view of U.S. Patent No. 5,023,907 to Johnson et al. (“Johnson”). The Examiner contends that Rivera and Horstmann disclose all the elements of these claims except generating individual license files for individual content or that one license file can be generated for a plurality of content files. The Examiner further states that Johnson discloses a licensing system that generates a single license for either individual content files or a plurality of content files.

Johnson discloses a network license server that provides access to client-server software under a concurrent user license. The Johnson system manages numerous software programs and

regulates access to the programs by tracking the number of concurrent users and does not generate license files. *See*, Johnson, column 2, line 60 to column 3, line 42.

Appellants respectfully disagree with the Examiner. Claims 8 and 9 depend from claim 1 and are allowable for at least the reasons explained with respect to Issue No. 3 regarding claim 1. Further, Johnson does not teach or suggest the elements lacking from both Rivera and Horstmann and present in claims 8 and 9. Appellants respectfully submit that the present invention is not obvious and the above rejection be withdrawn or reversed.

CONCLUSION

For the foregoing reasons, the final rejection of claims 1-9 and 11-22 should be reconsidered by the Examiner or reversed in its entirety by the Board. Claims 1-9 and 11-22 are supported, definite, enabled and patentable over the prior art of record. Accordingly, the Examiner's finding of unpatentability should be reversed. Such a disposition is earnestly solicited.

Dated: April 6, 2005

Respectfully submitted,

By 

Louis J. DeJuidice
Registration No.: 47,522
DARBY & DARBY P.C.
P.O. Box 5257
New York, New York 10150-5257
(212) 527-7700
(212) 753-6237 (Fax)
Attorneys for Appellants

3. The method of claim 2, further comprising a step wherein the license file is created by a license server.

4. The method of claim 3, further comprising the step of storing the provider system license file parameters using a subscription management system.

5. The method of claim 4, further comprising the step of storing one or more user license file parameters in a registry.

6. The method of claim 5, further comprising the step of storing the content item on a content server which is part of the provider system.

7. The method of claim 6, further comprising the step of recording the user downloaded content in a user's local database.

8. The method of claim 1, wherein individual license files are created for individual content items.

9. The method of claim 1, wherein one license file is created for a plurality of content items, said license file including one or more parameters for each content item.

10. (Canceled)

11. The system of claim 21, wherein said provider system further comprises a subscription management service, operable to monitor and maintain said one or more license file parameters.

12. The system of claim 11, wherein said user system further comprises a client application for receiving user input and providing said user input to said communication application, said license storage and said content storage.

13. The system of claim 12, wherein said one or more license file parameters comprise one or more of the following parameters: date, user's country of origin, monetary value on account, user's technical information, type of content to be downloaded, number of times the content has been downloaded and grace periods.

14. The system of claim 13, wherein said license server is operable to create said license file.

15. The system of claim 14, wherein said communication server is operable to receive said license file from said license file server and to transmit said license file with said content to said user system.

allow continued access to the content by the user in accordance with the license file parameters maintained by the provider system.

21. An apparatus for providing dynamic renewability for content provided from a content provider to a user, comprising:

a content provider system, said content provider system including:

a content server, operable to store and retrieve content items;

a communication server, operable to communicate with said user, said communication server operable to receive content items from said content server and to communicate said content items to said user;

a license server, operable to monitor the amount and type of content to be communicated to said user, said license server having stored thereon one or more license files, each said license file containing one or more parameters relating to one of said content items; and

a user system, said user system including:

a communication application, operable to communicate with said communication server in order to receive content items and license files;

a license storage, operable to store said one or more license files on said user system; and

a content storage, operable to store content items requested by said user and received from said content provider system, wherein said content provider system further comprises a means to transparently transmit said license files to said user.

22. A method for downloading and renewing content for a user, comprising the steps of:

- (a) requesting, by the user, a content item;
- (b) processing the user's request at a provider system, wherein the processing step comprises the step of creating a license file having one or more parameters for the content item;
- (c) receiving, by the user, the requested content item;
- (d) transparently receiving, by the user, the license file;
- (e) allowing continued access to the content item by the user in accordance with the license file by transparently renewing the one or more parameters in the license file if the parameters in the license file differ from the corresponding parameters maintained by the provider system, such that the user is unaware of the renewing of the one or more parameters in the license file as the renewing is taking place.

Transmissive / Transport Protocol Class F

Efficient is inversely related to the quality of the link or

category of control characters intended to control or help communication networks. See TCP.

Characters A group of characters used to facilitate operations are NAK (Not acknowledge) and EOT (end of trans-

Protocol TCP. A specification for software that bundles incoming data, manages the transmission of sequential data. In more technical terms, Transmission Control Protocol. Corresponds to OSI layer 4, transport-oriented, end-to-end protocol. It provides reliable, byte-by-byte transfer to a remote or local user. TCP provides reliability of the TCP/IP protocol suite that governs the exchange of data. See much longer explanation.

Protocol TC. Transmission Convergence Sublayer, a sublayer of the TCP/IP protocol suite.

Devices Any of the various devices used in conjunction with a transmission method to convert from one transmission method to another. Commonly include multiplexing equipment and Asynchronous Transfer Mode (ATM) equipment.

Medium A piece of a telecommunications system through which data is transmitted, a multi pair cable, a fiber optic cable, a coaxial cable, or a waveguide.

Structure A data structure, beginning and ending with delimiters, and defined by a protocol for the transmission of user and control data.

Power The power of a transmission signal at a specific point on a transmission line.

Point TLP. A designated physical point on a circuit where a signal is measured. Referencing this point in relation to other points in the network. See also Level, Loss, and Latency.

Wavelengths Above and below which the fiber ceases to be a waveguide and no longer transmits information.

Cable A coaxial cable or waveguide used for connecting a transmitter and receiver.

Loss Encountered in transmission through a system. Includes attenuation, such as wire, coaxial cable, fiber optics, air, or other signal which has information. Transmission media include twisted pair, coaxial, and twinaxial. Optical media include ribbon, stranded, and ribbon.

Characteristics A stated set of desired performance characteristics for which objectives are stated include loss, noise, distortion, envelope delay distortion, etc.

Pattern See Radiation Pattern.

Interface The interface bit rate minus the overhead bits.

OSI (TPO) OSI (Open Systems Interconnection) Simple Class. This is the simplest OSI Transmission Class. X.25 network (or other network that does not lose or

OSI (tp4) OSI (Open Systems Interconnections) or detection and recover class. This is the most powerful on any type of network. TP4 is the OSI equivalent of the Transport Protocol.

Key TSK. A key that is used in the control of transmission, frequency hopping and spread spectrum.

Rate Number of pulses or bits transmitted in a given period of time. BPS (Bits Per Second), Words Per Minute (WPM), Characters Per Minute (CPM), Lines Per Minute (LPM) in printer transmission.

Skilled technologists can translate one to the other.

Transmissive The way many LCD (liquid crystal display) screens on laptops reflect light.

Transmit Bus In AT&T's Information Systems Network (ISN), the circuit on the backplane of the packet controller that transports message packets from sending device interface modules to the switch module.

Transmit Digital Interface TDI. A 16-channel serial converter which converts the TDM Data Bus from parallel format to serial format for transmission between nodes.

Transmittance The ratio of transmitted power to incident power. In optics, frequently expressed as optical density or percent; in communications applications, generally expressed in decibels.

Transmitter The device in the telephone handset which converts speech into electrical impulses for transmission.

Transmitter Distributor A device in a teletypewriter system which converts the information from the parallel form in which it is used in the keyboard-printer to and from the serial form in which it is transmitted on the transmission line.

Transmitter Start Code A coded control character or code sequence transmitted to a remote terminal instructing that terminal to begin sending information.

Transmobile The transmobile (not to be confused with a TRANSPORTABLE) is another type of cellular phone. It is essentially a standard 3-watt mobile unit — without an external battery pack — that can be quickly and easily moved from one vehicle to another. It draws its power from the vehicle's battery via a cigarette lighter plug. See Bag Phone.

Transmultiplexer A device that takes a bunch of voice analog phone conversations and converts them directly into a T-1 1.544 megabit per second bit stream — without the need for de-multiplexing the bunches down to individual conversations, then digitizing them, then bundling them up into a T-1 digital bit stream. A transmultiplexer does it all in one go.

Transparency 1. A data communications mode that allows equipment to send and receive bit patterns of virtually any form. The user is unaware that he is transmitting to a machine that receives faster or slower, or transmits to him faster or slower, or in a different bit pattern. All the translations are done somewhere in the network. He is unaware of the changes occurring — they are transparent. ISDN is planned to be transparent. 2. In data communications, a suspension of control character recognition in certain systems while information transfer is in progress.

Transparency "Transparent Communications" 1. A basic objective of telecommunications systems, to make the transportation of information invisible to the user.

Transparency A suspension of control character recognition in certain systems while information transfer is in progress.

Transparency/Opacity An imaging term. A setting available in many image processing functions that allows part of the underlying image to show through. 80 percent opacity is equivalent to 20 percent transparency.

Transparent Fine or sheer enough to be seen through. Something that is transparent exists for some reason, but is invisible, or nearly so. In other words, it does not impair or affect the users' operation of the system or feature. In fact, the user need not interact with the transparent feature, and generally is totally unaware that it exists. Think of a pane of glass that serves to protect the interior of a building and its occupants from the elements, but does not affect the users' ability to see through it.

Transparent Applied to telephone communications, the term is used to characterize the provision of a feature or service such as Automatic Route Selection in a such a way that the user is unaware of it and it has no effect on the way he uses the telephone. It's "transparent" to the user. Translations, for example, are transparent to the telephone user. Similarly, protocol conversions are transparent. See also Translations, Transparency, and Virtual.

Transparent Bridging Transparent bridging is so called because the intelligence necessary to make relaying decisions exists in the bridge itself and is thus "transparent" to the communicating workstations. It involves frame forwarding, learning workstation addresses and ensuring no topology loops exist.

Transparent GIF Transparent GIFs are useful because they appear to blend in smoothly with the user's display, even if the user has set a background color that differs from that the developer expected. They do this by assigning one color to be transparent in the Web browser supports transparency, that color will be replaced by the browser's background color, whatever it may be.

Transparent Image An image that has had one color, usually the background, designated as 'transparent', so that when the image is displayed in a browser, the image's background is colored with the browser's background color. The effect is an image that does not have a visible rectangular background.

Transparent Mode 1. The operation of a digital transmission facility during which the user has complete and free use of the available bandwidth and is unaware of any intermediate processing. Generally implies out-of-band signaling (also called Clear Channel). 2. In BSC data transmission, the suppression of recognition of control characters, to transmission of raw binary data without fear of misinterpretation.

3. An operational mode supported by the T3POS PAD which enables the use of credit authorization and data capture link level protocols. This mode requires minimal modifications to the POS (Point Of Sale) terminal, and no modification to the ISP/Credit Association (CCA) host system software.

Transparent Networking Transport TNT. A service for transport LAN data across WANs in which all responsibility for the WAN transport is assumed by the WAN and is therefore invisible to the LAN.

Transparent Routing A method used by a bridge for moving data between networks. With this type of routing, the bridge learns which computers are operating on which network. It then uses this information to route packets between networks. It does not rely on the sending computers for its decision-making routine. A special kind of routing is called source routing transparent (SRT) bridge. It examines each packet that comes by to see if it is IBM's special source routing protocol. If so, this protocol is used to forward the packet. If not, the transparent method is used. Thus, the SRT bridge will support both IBM and non-IBM network protocols. See also Bridge and SRT. Compare with Source Routing.

Transponder There are two meanings: 1. A transponder is a fancy name for relay equipment on board a communications satellite. Just like its domestic microwave counterpart (which you see along highways), a transponder will receive a signal, amplify it, change its frequency and then send it back to earth. Transponders typically have 360 degrees of bandwidth. Full motion, full color TV video requires a 6 MHz analog channel. A transponder on an airline is a slightly different kettle of fish. When a radar signal strikes an aircraft, it activates an electronic transmitter called a transponder. The transponder sends a coded signal to the ground radar. The code appears next to the radar image of the aircraft, allowing the controller to identify each plane under his control.

Transport Driver A network device driver that implements a protocol for communicating between Lan Manager and one or more media access control drivers. The port driver transfers Lan Manager events between computers on the local area network.

Transport Efficiency An AT&T term for the ability to carry information through a network using no more resources than necessary. Transport efficiency is achieved, for example, by statistical transport, which removes silent intervals from voice, data or traffic and carries only the bursts of meaningful user information.

Transport Layer Layer 4 in the Open Systems Interconnection (OSI) data communications reference model that, along with the underlying network, data link and physical layers, is responsible for the end-to-end control of transmitted information and the efficient use of network resources. Layer 4 defines the protocols governing message structure and portions of the network's error-checking capabilities. Also serves the session layer. Software in the transport layer checks the integrity of and formats the data carried by the physical layer (layer 1, the network wiring and interface hardware), managed by the link layer (layer 2) and possibly routed by the network layer (layer 3), which has the determining path to be taken by data flowing through a network. See OSI.

Transport Level Level 4 of the Open System Interconnection (OSI) model. Transport level allows end users to communicate oblivious to network constraints imposed by the lower levels. Passes data from the Session level on to the Network Level. Ensures that the data reaches the other end. Level 4 also provides for flow management.

Transport Medium The actual medium over which transmission takes place. Transport media include copper wire, fiber optics, microwave and satellites.

Transport Overhead 1.728 MB/s of bandwidth allocated within each S TSP-1 channel to carry alarm indications, status information, and message signaling for the preventive and reactive maintenance of SONET transmission (transport).

Transport Protocol A protocol that provides end-to-end data integrity and data quality on a network. Windows 95 Resource Kit defines transport protocol as how data should be presented to the next receiving layer in the networking model and packaged accordingly. It passes data to the network adapter driver through the NDIS interface. See also Transport Protocol Class Four.

Transport Protocol Class Four TP4. An International Standard Organization (ISO) transport layer protocol designated as ISO IS 8073 Class Four. See TP4 has been adopted by the U.S. Department of Defense and specified in the

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